

Spring Snapshot: A Survey of Springs in Mojave National Preserve Fall 2005

National Park Service
U.S. Department of the Interior

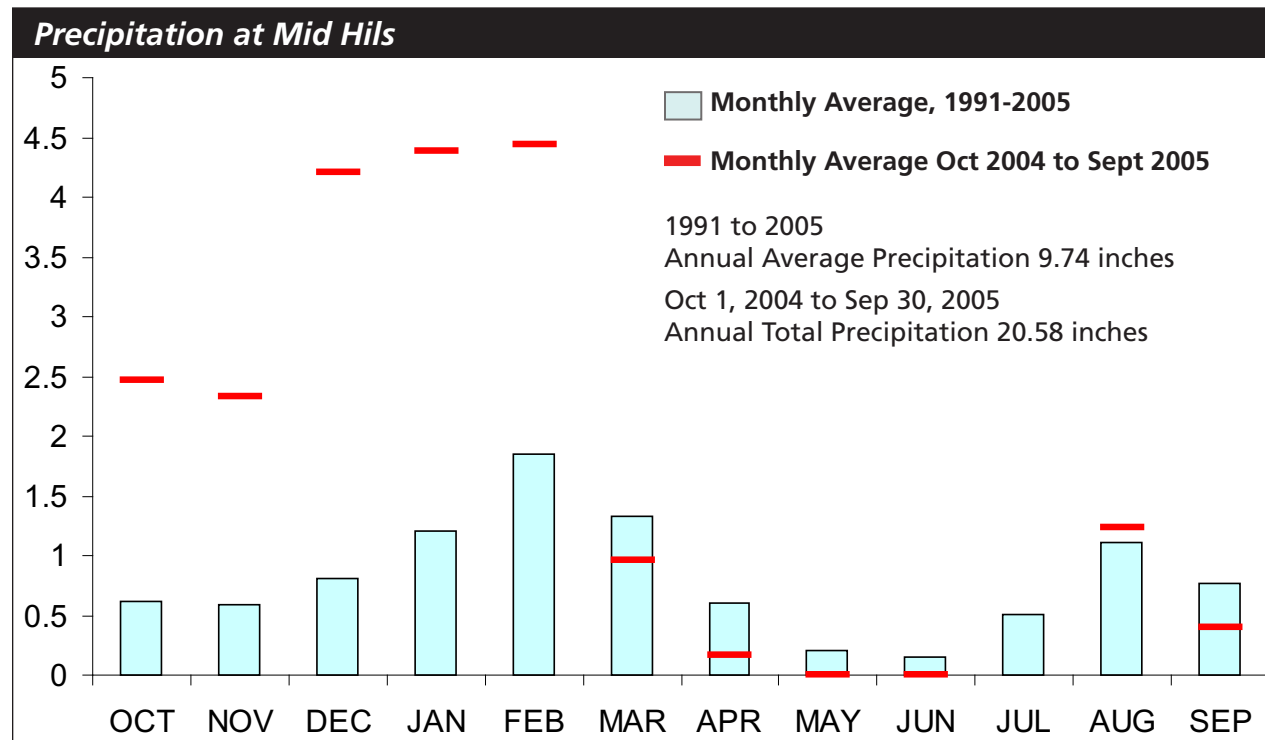


Mojave National Preserve

How much surface water is in Mojave National Preserve? The answer varies depending on the time of year and also from year to year. Late fall through spring is normally the wettest time of year. Late spring through early summer is usually the driest time of year in terms of rainfall. Summer monsoons occasionally bring heavy rainfall, but the unpredictability of monsoonal rains can mean that late summer through mid fall is the time of year with the least

available surface water. In order to identify how much surface water is available during the driest time of the year, park staff has initiated an annual survey of springs to take place every fall. The goal of this project is to form a snapshot of the water supply during what is normally the time of year with the least available surface water. Eventually, we hope to be able to make predictions about autumn water availability based upon the rainfall during the year.

The 1.6 million-acre Mojave National Preserve has over 160 springs scattered among its many mountain ranges. Several springs have more than one source from which water emanates. A total of 114 were visited in autumn of 2005, the first ever Spring Snapshot Survey. Visiting so many isolated springs in the span of three weeks is a monumental task that can not be managed without the help of many willing volunteers. We are most grateful for the generous assistance of all the volunteers from Quail Unlimited and the Bighorn Sheep Society who helped with this effort.



Monthly average precipitation from October 2004 through February 2005 (red lines) was more than double the normal monthly average (blue bars). August monsoonal rains were higher than average at Mid Hills. Other areas received even more extreme August rains: Kessler Springs received 6 inches that month.

2005 was a banner water year in the Mojave Desert. That year, rainfall data registered at different sites was reported to be from 2 to 3 times higher than that of average years. The high rainfall suggested that surface water should be more plentiful in places with minimal or no water in recent drier years. Hearing about vehicles getting stuck in sand is a frequent occurrence, but getting stuck in mud in May and June are rare events! It appeared that water was everywhere.

Initiating the fall survey of springs during the wettest year in recent memory brought up the question of just how typical would be the results? The advantage of repeating the survey every fall is that the results from this first effort can provide a baseline for future comparisons. Ultimately, the very wet conditions helped to identify places where water can be anticipated to appear when rainfall conditions improve following future dry periods. These places, once identified, can be used as reference points for surveys performed during subsequent years.

Methods

The reporting criterion was limited to one simple question, called “The Wet Hand Test:” if you put your hand down on the wettest place, would your hand actually get wet or would it merely touch damp soil? Many animals are known to paw or stomp into slightly wet ground in order to create a depression that fills with water from which they drink. Thus, even a tiny amount of surface water (enough to wet a hand) on soft ground could provide drinking water for wildlife. Whereas the wet hand test will be used every year, fall 2005 saw long flowing streams in places where only damp or dry soil was found in past years.

Forty groupings of springs sharing geographic proximity were identified in order to facilitate observation by the volunteers. These spring groupings, drawn on maps, were distributed to the volunteers. After visiting the sites, the volunteers returned their observations to the Mojave National Preserve hydrologist for compilation.

Results

Of the 114 springs visited by volunteers and park staff during the survey period, over 80% had available surface water in fall 2005. Springs that were not visited are marked on the attached map for location purposes, but with a symbol showing no data are available.

We anticipated that some wet springs wouldn't be located by the volunteers, and thus would be incorrectly marked as dry. We visited all springs reported as dry to confirm those reports. In some cases we verified dry reports, in some cases we corrected reports from dry to wet.

An inventory to locate and record all springs began in 2002 and is nearly complete. Prior to the year 2005, approximately 75% of springs were wet at the time of sampling. The current rate of 83% of springs now wet represents an increase of approximately 29 wet springs beyond what would have been observed prior to 2005.



Abundant rains in 2005 caused long-dry streams to flow.

Due to logistical problems with the timing, over a third of the springs were not visited during the three weeks of the 2005 survey (the survey period overlapped with hunting seasons). We plan to resolve these scheduling problems for the fall 2006 survey, continuing the Spring Snapshot Survey to gain a more complete picture of the water availability at Mojave National Preserve.

Spring Survey Summary

Total number of spring sites included in the 2005 fall survey	182
Number of springs visited and observations returned; percentage of total	114; 63%
Number of springs not visited or observations not returned; percentage of total	68; 37%
Number of 114 observed spring sites wet; percentage of total	95; 83%
Number of 114 observed spring sites dry; percentage of total	19; 17%

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